

ABSTRACT OF THE DISCLOSURE

An apparatus for unified exception handling with distributed exception identification includes a packet processing pipeline with at least two processing stages for processing data packets, each of the data packets being processed having an associated exception map in a memory of the apparatus. An exception detector at each processing stage detects whether any exception conditions apply to the data packet at the processing stage, and if so, a bit setter sets, modifies, or resets one or more bits in the exception map associated with exception conditions detected at the processing stage. An exception handler processes the exception map in response to the state of in the exception map after all the processing stages are complete. The method provides for processing a data packet through at least two pipelined processing stages in a data packet processor such as a switch, router, bridge, or similar network device, each of the data packets has associated with it (while it is being processed) an exception map disposed in a memory of the network device. The bits in the exception map are set, modified, or reset in response to exception conditions detected at the various processing stages. After the packet has been fully processed, an exception handler takes as an input the exception map and further processes the packet in response to the state of the exception map.